

**ABSTRACT OF THE DISCLOSURE**

5 A gear state diagnostic method using frequency demodulation includes the  
steps of (a) detecting a voltage value that is linked to changes in rotational speed of a  
gear, the voltage value being output by a pulse generator; (b) performing frequency  
modulation of the voltage value by monitoring means; (c) acquiring the rotational  
speed of the gear by performing frequency demodulation of the frequency modulated  
voltage value using sampling method; and (d) monitoring the demodulated frequency  
10 and tracking changes in rotation of the gear to determine whether there are errors in the  
gear.

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